

IN THE CLAIMS:

1. (Currently Amended) A plastic welding machine, ~~especially a hot air or heating wedge welding machine~~, for connecting in substance at least two ~~said~~ plastic layers (38, 39, 43, 44, 48-50), wherein the welding machine (1) contains said comprising:

~~a welding tool (7), at least one pair of said~~:

5 ~~drive rollers (8, 9) each, as well as a said, and~~

an electronic control device (2) comprising a computer (3) for controlling the temperature of the welding tool (7) and for setting and regulating the pressure of the drive rollers (8, 9), with the features wherein:

10 a) the electronic control device (2) has at least one ~~said~~ memory (35), into which a process program can be loaded, which controls the welding of the two layers (38, 39, 43, 44, 48-50) section by section, wherein primary welding parameters, which are preset by the process program at the beginning of the particular welding section (40-42, 45-47, 52-54) and are characteristic of the given section, said welding parameters including at least one of such as the temperature of the welding tool (7) or of the particular welding medium, the velocity of feed 15 of the two drive rollers (8, 9) or of one of the two drive rollers, the roller pressing pressure, are set;

20 b) the welding machine (1) comprises a path measuring system, which is connected to the electronic control device (2) for determining the path section of the layers (38, 39, 43, 44, 48-50) welded together during the welding operation; and

c) the electronic control device (2) is designed such that it performs a comparison

between the measured path section of the particular layers (38, 39, 43, 44, 48-50) welded together and a preset value characterizing the beginning of the next welding section (40-42, 45-47, 52-54), and that it sets the welding parameter characteristic of the corresponding new welding section (40-42, 45-47, 52-54) in case of agreement between the measured value and the preset value.

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2. (Currently Amended) A plastic welding machine in accordance with claim 1, characterized in that wherein the path measuring system comprises at least one ~~said~~ tachometer generator (22, 23).

3. (Currently Amended) A plastic welding machine in accordance with claim 1, characterized in that wherein a sensor, which scans said marks that define the individual welding sections and are arranged on the material to be welded, is provided as the distance measuring system.

4. (Currently Amended) A plastic welding machine in accordance with claim 1, characterized in that wherein the two drive rollers (8, 9) can be driven at different speeds of rotation.

5. (Currently Amended) A plastic welding machine in accordance with ~~one of the claims~~ claim 1 through 4, characterized in that wherein the control device (2) comprises a memory,

in which data that can be displayed on a display screen (5) of the welding machine (1) and show  
comments and/or settings of the welding tool (7) that are associated with the particular current  
5 welding program can be stored.

6. (Currently Amended) A plastic welding machine in accordance with claim 5,  
characterized in that wherein the control device (2) comprises a memory (36), which contains  
secondary roller and welding tool parameters, which can be set by the process program before  
the start of the welding operation and remain effective for the entire welding operation  
5 comprising a plurality of said welding sections (40-42, 45-47, 52-54).